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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/894,378 | 06/29/2001 | Richard Henry Dee | 2001-021-TAP | 5547 |

7590 07/09/2003

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EXAMINER

CASTRO, ANGEL A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2653

DATE MAILED: 07/09/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/894,378

Applicant(s)

DEE, RICHARD HENRY

Examiner

Angel A Castro

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

In page 24, line 8, "1160" should be changed to --1110--.

Correction is required.

Claim Objections

2. Claim 14 is objected to because of the following informalities:

In claim 14, line 2, "claim 3" should be changed to --claim 13--.

Correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The term "standard spin valve apparatus" in claims 1 and 8 is a relative term that renders the claim indefinite. The term "standard spin valve apparatus" is not defined by the

Art Unit: 2653

claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The spacing between the spin valve sensor has been rendered indefinite by the use of a "standard spin valve sensor" since such standard has not been defined in the specification.

What could be considered a standard spin valve sensor 10 years ago is probable not the same as the one at the time the invention was made.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gill et al (U.S. Pat. 5,828,530).

Regarding claims 1-2 and 8-9, as far as it is understood, Gill et al discloses a reduced sensitivity spin valve sensor apparatus (figure 4), comprising:

a spin valve sensor 40; and

a pair of magnetic shields S1 and S2, wherein a spacing between the spin valve sensor and each magnetic shield of the pair of magnetic shields is reduced relative to standard spin valve sensor apparatus to thereby reduce a flux injection efficiency of the spin valve sensor (column 5, lines 58-59).

Gill et al further discloses that the spacing between the spin valve sensor and each magnetic shield is reduced by decreasing a thickness of an insulating layer between the spin valve sensor and the magnetic shields (column 6, lines 23-31).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-7 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Pat. 6,134,078) in view of Cain et al (U.S. Pat. 5,493,467).

Regarding claims 3 and 10, Suzuki discloses a sensor apparatus (figure 1), comprising:

a first sensor 16;

a second sensor 15; and

at least one flux guide 13, wherein a flux generated by the at least one flux guide is shared between the first sensor and the second sensor to thereby reduce a sensitivity of the sensor apparatus (column 1, lines 27-28).

Regarding claims 4 and 11, it is inherent in the reference that by sharing the flux between the first sensor and the second sensor it reduces a flux injection efficiency of the sensor apparatus.

Regarding claims 5 and 12, Suzuki discloses that the at least one flux guide includes a top flux guide 13 and a bottom flux guide 12.

Regarding claims 6 and 13, Suzuki discloses that the top flux guide 13 is positioned between the first sensor 16 and the second sensor 15, and the bottom flux guide 12 is positioned nearest a side of the second sensor that is furthest away from the first sensor.

Regarding claims 7 and 14, Suzuki discloses that the second sensor is positioned on the planars (the planars in this particular case would be the layer between sensor 15 and flux guide 12, Column 3, lines 17-20).

Suzuki does not specifically disclose that the MR sensors are spin valve sensors. Cain et al discloses a yoke spin valve MR read head (figure 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the reduced sensitivity sensor apparatus of Suzuki with the spin valve sensors as taught by Cain et al.

The rationale is as follows: Cain et al utilize a spin valve sensor in the yoke type read head with the purpose of taking advantage that the magnetoresistance is not dependent on the relative direction of the sense current. One of ordinary skill in the art would have been motivated to provide the reduced sensitivity sensor apparatus of Suzuki with the spin valve sensors as taught by Cain et al as it would eliminate the dependency on the direction of the sense current.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nepela et al (U.S. Pat. 6,078,479) discloses a magnetic tape head with flux sensing

Art Unit: 2653

element; Ruigrok et al (U.S. Pat. 5,270,895) discloses a combined read/write thin-film magnetic head; Michalek et al (U.S. Pat. 5,241,439) discloses a combined read/write thin-film magnetic head with two pairs of flux guides; Koel et al (U.S. Pat. 4,150,408) discloses a thin-film magnetic head for reading and writing.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel A Castro whose telephone number is 703-308-8435. The examiner can normally be reached on Monday through Thursday, 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R Korzuch can be reached on 703-305-6137. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-6037 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.



Angel Castro, Ph.D.
June 30, 2003